

ABSTRACT OF THE DISCLOSURE

A method for manufacturing a semiconductor device including the steps of: forming a hole having a predetermined depth in a semiconductor layer of a first conductivity type in correspondence with a drain region, the semiconductor layer being formed on a semiconductor substrate; forming a diffusion source layer containing impurities of a second conductivity type different from the first conductivity type in the hole; forming a source region of the first conductivity type in a region shallower than the depth of the hole in the semiconductor layer; forming a channel region of the second conductivity type to be disposed between the drain region and the source region in a region deeper than the depth of the source region in the semiconductor layer; and heating the semiconductor substrate to a first temperature after completing the diffusion source layer forming step to diffuse the impurities of the second conductivity type from the diffusion source layer into the channel region, thereby forming a low resistance region having a conductivity higher than that of the channel region.